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ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST.

Committee for Co-ordination of Investigations
of the Lower Mekong Basin.

(Cambodia, Laos, Thailand and Viet-Nam)

REPORT OF THE FRENCH SEDIMENTATION MISSION

by

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The French Sedimentation Mission will have completed its work on 30 November 1963. We are submitting to-day a summary of the conclusions we already have reached. These conclusions will be further completed and elaborated upon when the analytical data, some of which have not yet been submitted by the relevant Cambodian services, are being processed and prepared.

The sedimentation Mission had two problems to solve:

1 - What is the rate of sediment accumulation in the Great Lake in the recent past?

2 - Preparation of broad sedimentation budget of the Great Lake Basin.

The former was dealt with in two publications, one in the Cahiers du Pacifique, and the other with the Société Géologique de France. A summary of the conclusions "Sur la vitesse de colmatage du Grand Lac au Cambodge" (Sedimentation rate of the Great Lake). This note was sent to the Committee on the 5th August through the French Representation in Bangkok.

The conclusions we already have reached are as follows:

- firstly, a coherent and constant stratigraphy for the whole Great Lake Basin has been determined. The sediments in the Basin include three quite distinct levels which we called, from top to bottom:

- current silt
- intermediate silt
- ancient silt

These three levels, which exist everywhere in the Basin correspond to very different sedimentation conditions connected with climate variations.

A very clear stratigraphic discontinuity separates the lower level (ancient silt) from all overlying formations. We thus could determine that the Great Lake exists such as we know it to-day only since the date of the first layer that settled on this surface of dicontinuity.

- various indications - although they did not enable us to submit

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absolutely precise figures, suggested the comparative ancientness of the Great Lake, i.e., as we think, of the "current silt". Among other things, the discovery of a polished stone tool of the Samrong Sen period (Paleolitic) near the present banks of the Lake, shows that 2,500 years ago men had settled near the Great Lake practically in the same conditions as to-day.

- lastly, the dating through the Carbon 14 method of vegetable debris found at the bottom of the "current silt" made it possible to establish the following facts:

1) The Great Lake, such as we know it to-day, is no more than 5,000 years old. It developed in a depression that settled behind the double bar of Kompong Chhnang and of Snoc Trou.

2) The average sedimentation rate is, for the 5,000 years' life of the Lake, of the order of 0.5 mm per year at most.

3) The specific erosion to be inferred from this figure is for the whole basin of the order of 100 tons/sq.km/year, taking as a basis a sedimentation surface representing an average between the low water level and the high water level of the Great Lake.

These figures correspond to an average spread over 5,000 years; one should however not systematically conclude that the sedimentation conditions have always been constant during that time; they may have oscillated around this average and have progressed in time as everything seems to indicate.

However, these variations must have been comparatively small considering the general thinness of the sediment layers.

These results only apply to the area in which we conducted drillings. Thus, in the region of the Veal Phok, no drilling could be done in the regions that were most promising from a sedimentation viewpoint, on the one hand because topographical conditions were not favorable, and on the other hand because our equipment was solely adapted for work on lakes and open waters. The Indian Mission made numerous drillings in the region of Kompong Chhnang and will no doubt be able to provide cross-sections which may usefully contribute to the appraisal of the

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region.

All in all, and everything considered, in the Great Lake area proper the sedimentation rate is low and appears in no way to assume critical proportions.

The second question we had to answer was the sedimentation budget of the Great Lake. For this task, jointly conducted with Mr. Guiscafre and the Hydrology Section of the Public Works Department, no data can be submitted for the time being. The analytical data are being processed and the final results cannot be published before a few months' interval.

We nevertheless may say that this budget will not diverge very much from the results yielded by other aspects of the study of the sedimentation of the Lake. The various data seem to piece up fairly well.

We for instance may say that the Stung of Battambang, the budget of which is easy to calculate as it does not carry sand at the level of the road which extends around the lake has a watershed whose specific erosion, for the period from October 1962 to November 1963, is 63 tons/sq.km/year. This figure is significant of the low rate of erosion despite the fact that much new land has been cleared for cultivation in the area.

We did not include the Veal Phok region in this budget as its sedimentation conditions, essentially determined by the waters of the Mekong, are very different from those of the Great Lake.

A special study of this area was undertaken during the last flood. The data have been completely processed. The daily discharges in Kompong Chhnang and Snoc Trou were not available for a quantitative interpretation of our results.

Part of the suspended load in the Mekong water, as this river flows in the direction of the Great Lake, settles between Snoc Trou and Kompong Chhnang; however, it is not yet possible to form a definite idea of the importance of this sedimentation process.